WE CLAIM:

1. A method for error detection in a drive mechanism, having a multiphase electric motor and a converter connected upstream thereof, wherein said converter controls voltages of individual phases of said electric motor, and individual phase currents in said individual phases of said electric motor each extend periodically, the method comprising:

measuring a phase current of said electric motor at a predetermined point of a respective period;

simultaneously varying a voltage that is associated with said measured phase current; and

evaluating a measured value of said measured phase current as a function of said voltage that is associated with said measured phase current.

2. The method in accordance with claim 1, wherein said evaluating allows distinguishing between an error in said converter and a disruption of current flow in a phase of said electric motor that corresponds to said measured phase current.

3. The method in accordance with claim 2, wherein said disruption of current flow is caused by a line break or an open electrical contact.

4. The method in accordance with claim 2, wherein said error

in said converter is caused by a faulty converter valve.

5. The method in accordance with claim 4, wherein said converter valve is in the form of a transistor or a thyristor.

6. The method in accordance with claim 2, wherein in case of a disruption in a phase of said electric motor, said measured phase current is equal to zero, regardless of a value of said associated voltage, and in case of an error in a converter valve of said converter, said measured phase current is equal to zero only for a portion of said value of said associated voltage.

7. The method in accordance with claim 1, wherein said measured phase current is equal to zero at the point of said period at which said measuring is performed.

8. The method in accordance with claim 1, wherein said individual phase currents are phase-shifted with respect to each other by a defined amount, and said measuring takes place at a defined point of one of the periods of said individual phase currents.

9. The method in accordance with preceding claim 1, wherein a ratio of said converter control voltages which are not equal to zero during the respective current measurement remains constant during the measurement, and the

sum of said converter control voltages is equal to zero during the measurement.

10. The method in accordance with claim 1, wherein said voltage during said measuring said phase current is periodically varied during said measuring.

11. The method in accordance with claim 10, wherein said voltage passes through exactly one period during said measuring.

12. The method in accordance with claim 11, wherein said voltage has a zero-crossing that extends sinusoidally.

13. The method in accordance with claim 1, characterized in that several measurements of said measured phase current are performed for error detection at a respectively predefined point of the period.

14. The method in accordance with claim 13, further comprising measuring other phase currents associated with the remaining phases of said electric motor other than said phase associated with said, said measuring other phase is performed simultaneously with said measuring a phase current and said measured phase current and said other phase currents are each measured a number of times equal to the number of phases of said electric motor.

15. The method in accordance with claim 14, wherein during said measuring of said phase current and said other phase currents, one of said phase currents has a value equal to zero.

16. The method in accordance with claim 1, wherein said evaluating comprises evaluating said measured current at points of a respective current path which is defined by a path of said voltage associated with said measured phase current.

17. The method in accordance with claim 10, wherein said evaluating is performed maximum or minimum of said measured current located between a maximum or minimum and a zero-crossing of said voltage associated with said measured phase current.

18. The method in accordance with claim 1, wherein a value of said measured phase current is stored in the form of a table for evaluating said measured phase current.

19. The method in accordance with claim 1, further comprising determining behavior of a second phase current based on a value of said measured phase current.

20. The method in accordance with claim 1, further comprising

generating an input signal of said converter as a function of an output signal of a controller, wherein said controller generates pulse width modulated signals.

21. The method in accordance with claim 20, further comprising checking said output signal at an interface between said controller and said converter for an error in said output signal by an evaluation circuit.

22. The method in accordance with claim 21, further comprising:

varying said output signal in accordance with a preset pattern; and

measuring and evaluating a voltage signal generated at an input of said converter as a function of said output signal.

23. The method in accordance with claim 22, wherein said error is considered to have been detected if an expected voltage signal based on said output signal does not appear.

24. The method in accordance with claim 22, wherein said evaluating said voltage signal generated at said input of said converter comprises linking different voltage signals generated at said input of said converter with said output signal of said controller to each other.

25. The method in accordance with claim 24, wherein said

linking is performed by at least one logical gate.

26. The method in accordance with claim 1, further comprising checking whether a short circuit exists between two phases of said electric motor in case of an appearance of an overcurrent during said measuring.

27. The method in accordance with claim 26, wherein said checking is only performed when an overcurrent has occurred in a converter valve of said converter.

28. The method in accordance with claim 26, wherein said checking comprises connecting two phases of said electric motor to a common electrical potential.

29. The method in accordance with claim 28, wherein said checking comprises connecting said two phases of said electric motor one after the other to said common electrical potential in order to determine between which phases said short circuit has occurred by evaluating phase currents occurring during said connecting.

30. The method in accordance with claim 28, further comprising determining said voltage of said measured phase current by determining an angle of current flow of said measured phase current.

31. The method in accordance with claim 1, further comprising checking whether a line-to-ground fault exists in a phase of said electric motor that corresponds to said measured phase current when an overcurrent in a converter valve of said converter exists.

32. The method in accordance with claim 31, wherein said checking comprises charging individual circuits of said converter connected upstream of said phases of said electric motor with identical input signals.

33. The method in accordance with claim 32, wherein each of said individual circuits is assigned to a corresponding one of said phases of said electric motor.

34. The method in accordance with claim 33, wherein each of said individual circuits have transistors or thyristors arranged in pairs.

35. The method in accordance with one of claims 34, wherein each of said electrical circuits cause one of two possible voltages to be applied to a respective phase as a function of said input signal of said converter.

36. The method in accordance with claim 32, wherein said checking comprises setting each voltage that is associated with said individual

phase of said electric motor to an identical value.

37. The method in accordance with claim 1, wherein said multiphase electric motor is embodied as a three-phase motor.